- - 42. (Amended) A system for introducing a periodic transmissive function to an input optical beam of an arbitrary state of polarization having wavelength multiplexed channels comprising:

at least a first beam splitter arrangement receiving the optical beam and providing two beam pairs of different polarizations:

a pair of polarization insensitive optical delay lines, each in the path of a different beam, and introducing selected differential optical delays between beam pairs to provide wavelength dependent, polarization modulated beams carrying the multiplexed channels: and

at least a second beam splitter arrangement receiving the different beams from the delay lines and combining them to form wavelength dependent, polarization modulated beams which transmit multiplexed channels of different spacings than the input.

- - 68. (Amended) An interleaver as set forth in claim 65 above, wherein the stages comprise three stages of total lengths L, 2L, and 2L for a 50 GHz interleaver, where n is a length selected for a 100 GHz interleaver.

- - 69. (Amended) An interleaver as set forth in claim 65 above, wherein the stages comprise two stages of nominal total length 2L and 4L for a 25 GHz interleaver, where n is a length selected for a 100 GHz interleaver.

- - 70. (Amended ) An interleaver as set forth in claim 65 above, wherein the stages comprise two stages of nominal total lengths 4L and 8L for a 12.5 GHz interleaver, where n is a length selected for a 100 GHz interleaver.

- - 98. (Amended) The method as set forth in claim 96 above, wherein the stop of phase tuning is performed in association with the application of differential delays.

- - 99. (Amended) The method as set forth in claim 96 above, wherein the step of phase tuning is performed independently of the application of differential delays.